DOCUMENT RESUME

ED 285 160 CS 210 558

AUTHOR Shoemaker, Pamela J.; And Others
TITLE Involvement with the Media: Recall versus Recognition of Election Information.
PUB DATE Aug 87
NOTE 37p.; Paper presented at the Annual Meeting of the Association for Education in Journalism and Mass Communication (70th, San Antonio, TX, August 1-4, 1987).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Cognitive Processes; Elections; *Information Sources; *Knowledge Level; *Mass Media Effects; Media Research; Newspapers; Political Attitudes; Political Issues; Public Opinion; *Recall (Psychology); *Recognition (Psychology); Television Viewing
IDENTIFIERS *Media Use

ABSTRACT

A study examined how use of different kinds of "involvement" measures (behavioral, cognitive, or affective involvement, gratifications sought, and cognitive effort expended) could help explain differences between people's knowledge of election information and whether the way that knowledge is measured affects conclusions about involvement with television and newspapers. Respondents, 238 adults surveyed by telephone, completed a questionnaire covering media use and attitudes, perception and knowledge of candidates and issues, voting patterns, political beliefs, and demographics. Results indicated that, in addition to observed differences in information holding usually explained by group differences in political interest or education, three other explanatory factors contributed to observed differences: (1) the operational definition researchers used in measuring knowledge, (2) the amount of cognitive effort expended in processing information from newspapers and television, and (3) respondent's age. Results also indicated no difference between newspaper- and television-reliant individuals' recognition of election information, but did indicate greater recall of election facts among younger, newspaper-reliant respondents, suggesting that television-reliant individuals are receiving and processing election information, but that the information can best be retrieved through a multiple-choice type of question. Findings show that when recall is measured, newspaper-reliant people may appear more "involved" in the election, but when recognition measures are used, television-reliant people do just as well. Thus, conclusions about whether a medium is "high" or "low" involvement may depend totally on the subjects. (Extensive tables of data, figures, notes and references, and the study instrument are appended.) (NKA)

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INVOLVEMENT WITH THE MEDIA:

RECALL VERSUS RECOGNITION OF ELECTION INFORMATION

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Pamela J. Shoemaker
Caroline Schooler
Wayne A. Danielson

University of Texas
Department of Journalism
Austin TX 78712
512-471-5933

August 1987

CS 210 558

Pamela J. Shoemaker is an assistant professor, Caroline Schooler is a graduate student, and Wayne A. Danielson is a professor in the University of Texas at Austin Department of Journalism.

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The idea that newspaper reading is a "high involvement" activity and that television viewing is "low involvement" has become part of the "popular lore" (Greenwald and Leavitt, 1984:590). Such generalizations have usually been put forth to explain observed differences in political knowledge between people who say they rely on television for their political news and those who report reliance on newspapers (Miller and Reese, 1982). Only very recently have some scholars suggested that the commonly observed relationships between media reliance and knowledge may be spurious, a function of lower educational levels (and hence lower overall levels of knowledge) for the small proportion of the U.S. population which uses television alone for news (Chaffee and Schleuder, 1987). Reese and Miller (1981) suggest that absolute differences in information holding between television and newspaper audiences can be explained by differences between the two groups such as levels of political interest.

The purpose of this paper is to show how different kinds of involvement measures can add to our ability to explain differences between people's knowledge of election information and to investigate whether the way we measure that knowledge affects our conclusions about involvement with television and newspapers.

Involvement

Zaichkowsky (1986) has categorized the variables proposed to precede involvement as: (a) characteristics of the person, such as his inherent value system, unique experiences; (b)

physical chacteristics of the stimulus, such as differences between television and newspaper or differences in messages (e.g., topics) themselves; and (c) characteristics of the situation, such as interest in car advertisements being affected by whether one is preparing to purchase a car. The first and third of these categories seem both to describe differences between individual people, effectively leaving individual person characteristics and stimulus characteristics to explain variance in involvement.

Another way of looking at the antecedents of involvement is by assessing the extent to which these stimulus and person characteristics may interact, an idea suggested by Krugman (1966):

First, we could consider involvement with an issue or situation, such that some issues are inherently more involving than others but with involvement also differing between individuals. This type of involvement is conceptualized as a level of personal concern (Chaffee and Roser, 1986), personal importance (Greenwald and Leavitt, 1984; Petty and Cacioppo, 1979), commitment to a topic (Chaffee and Miyo, 1983), and connections between self and a situation (Grunig, 1979; Krugman, 1965). For example, most economic issues are generally thought to be more involving than abstractions such as freedom of the press; however, a journalist with a secure job might worry more about freedom of the press than would a factory worker. Thus issue involvement varies according to an interaction between individuals and issues.

Second, there is involvement with a mass medium in terms of the amount of perceived cognitive effort expended by an individual when using the medium, which varies according to an interaction between media and people. Salomon (1983) says that the amount of mental effort a person expends on cognitive processing depends on the amount he anticipates will be required,

and he suggests that, although people differ in the amount of effort they anticipate will be necessary to understand television and newspaper messages, television is in general perceived as a less difficult medium.

Left over is the approach which holds that there is a main effect of the characteristics of the mass media, with television viewing being inherently a less involving cognitive activity than newspaper reading. Krugman (1977) differentiates between high involvement, left-brain cognitive processing (reading and speaking, characteristic of print media use) and low-involvement, right-brain processing (perception of images, characteristic of television viewing). Roberts, Bachen, Hornby, and Hernandez-Ramos (1984) define involvement as the degree to which children become immersed in or "captured" by print and by television, also suggesting that there are between-media differences controlling involvement.

Medium-based involvement characteristics

When television viewing is called more "passive" than newspaper reading and television viewers are called "lethargic," the underlying assumption is that, because "viewers are not doing something that is easily described verbally, they are doing little perceptual or cognitive processing" (Krull, 1983:104-105). In fact, Krull points out, viewers may be quite active mentally, with research showing that "viewers' electroencephalograph patterns showed indications of comparatively greater amounts of processing for some instructional televised materials than for reading" (1983:105).

This is consistent with McLuhan's distinction between television as a "cool" medium and newspapers as "hot" media. "Hot media are . . . low in participation, and cool media are high in

participation or completion by the audience," because hot media "do not leave so much to be filled in or completed by the audience" (1964:36). Graber (1984) also says that viewing television news may require more cognitive processing than reading newspaper news, once the literacy hurdle is overcome. "Printed stories state meanings explicitly and provide preprocessed information from which to choose data that fit into available schemas. . . . While pictures [in telecasts] are more plentiful and while one picture may be worth a thousand words or more, a problem arises. Faced with the equivalent of a thousand words or more, most people are unable to absorb the flood of information quickly enough, particularly when the pictures lack explicit cues to point out which is important" (Graber, 1984:214). Thus, Graber's finding that 48 percent of newspaper stories were remembered compared with only 27 percent of televised stories may be a reflection of the higher level of cognitive processing required to learn a fact from television, not a lower level as is often assumed.

Krugman specifies that differences in eye movements in reading newspapers and viewing television determine whether cognitive activity occurs in the left or right brain, with left-brain activity being high involvement and right-brain activity being low involvement. "Reading and speaking are left-brain functions, while the perception of images is a right-brain function. Therefore, the medium of print is a left-brain function, and TV largely or relatively a right-brain function" (1977: 8).

Although an apparent contradiction exists between Krugman's left-brain, right-brain perspective and the Krull/McLuhan/Graber approach, the two can be reconciled fairly easily. The latter scholars talk about the absolute amount of cognitive activity which is present, whereas Krugman specifies in which hemisphere of the brain that activity takes place. That

Krugman chooses to call activity which takes place in the right-brain "low involvement" does not mean necessarily that the amount of activity occurring in the right-brain during television viewing is less than that occurring in the left-brain during newspaper reading. Remember that Krugman's definition of "involvement" concerns not attention, interest, excitement, but rather "the number of conscious 'bridging experiences,' connections, or personal references per minute that the [individual] makes between his own life and the stimulus" (1965:355).

In fact, Krugman recognizes that learning may take place as a result of either left- or right-brain cognitive processing, but suggests that the exact nature of the material learned may differ. He says that low-involvement (i.e., right-brain) learning consists of "the building or strengthening of picture-image memory potential" and should be measured differently from high-involvement (left-brain) learning. "Such potential is properly measured by recognition, not by recall. The use of recall obscures or hides already existing impact. . . . The proper measure of high-involvement impact is indeed recall along with clear verbalizing and correct perception of the stimulus" (Krugman, 1977:9).

Hypotheses and research question

This study is intended to test the extent to which some of these different approaches to the study of "involvement" may help predict individual's level of knowledge about an election campaign. We are building on a 1985 article by McLeod and McDonald which concluded that "simple exposure" to the mass media was not a very good predictor of economic knowledge. McLeod and McDonald added measures of exposure to specific media content, attention to specific content, and gratifications sought from media use as a way of explaining differences in

newspaper- and television- and other-reliant individuals' economic knowledge, accounting for 26% to 40% of the variance in economic knowledge. We are also interested in discovering whether the way in which knowledge is operationalized will affect the results, i.e., whether knowledge is measured as recall (open-ended questions) or as recognition (closed-ended questions).

Our overall goal is to discover whether the specification of and addition of other measures of involvement can increase the amount of variance accounted for by the McLeod-McDonald model. Our dependent variable will be individuals' knowledge of impending (within two weeks of the poll) local and state election candidates and issues. We have followed Krugman's suggestion that left- and right-brain learning may be best measured differently, by recall and recognition measures respectively. Therefore we have two knowledge indexes (see Appendix A), one measuring political knowledge through recall (i.e., open-ended) and the other through recognition (i.e., closed-ended). The knowledge questions include both knowledge of discrete, time-bound events and associated individuals featured in the news media.

Compared to print, broadcast news stories tend to be briefer, simpler, easier to process. Chaffee and Tims (1982) noted that exposure to television news may be particularly effective for learning such itemized cognitions as the names of political actors or parties (Garramone and Atkin, 1986). Furthermore, Culbertson and Stempel (1986:593) found that learning can occur when watching television news, "but primarily when the watching is geared to specific content areas such as state and local politics."

Our independent variables (see Appendix A) include demographics (education, income, and age), overall exposure to television and newspapers, and a variety of involvement measures

(behavioral, cognitive, gratifications sought, affective, and amount of cognitive effort) which have been suggested by various scholars:

Behavioral involvement: Self-reported media usage on the specific topic on which knowledge is being tested, suggested by Chaffee and Roser (1986). In our study, we measure the frequency of usage of television and newspaper stories dealing with the elections. We also consider self-reported media reliance (dependence on television, newspaper, or other sources of information) to be a kind of behavioral measure of involvement. Reliance may also be related to attention because it makes sense to attend to a medium that one trusts and relies on when making decisions (Culbertson and Stempel, 1986). Although McLeod and McDonald (1985) use media reliance as a way of stratifying respondents, performing separate analyses for each group, we will also look for interactions between reliance and other variables.

Cognitive involvement: Self-reported attention to the specific topic on which knowledge is being tested, measures used by McLeod and McDonald (1985). In our study, we measure attention to the elections in television and newspaper stories.

Affective involvement: Attitude extremity on the topic of interest, suggested by Chaffee and Roser (1986). Our study asked for a self-report of political ideology and measured ideological extremity as the distance (either liberal or conservative) from the center (moderate) scale position.

Gratifications sought: Self-reported reasons why respondents use the mass media. McLeod and McDonald (1985) used measures of surveillance and communication utility. Our study included measures of both types of gratifications, asking people to assess why they read or watch stories about the upcoming elections.

Cognitive effort expended: The individual's expenditure of effort in processing messages from different mass media has been measured by Salomon (1983) as the homogeneity of responses to questions about how difficult specific kinds of stories are to understand in newspapers or on television. Salomon says that the more stereotyped a person's view of a medium is (as pertains to how difficult various types of content are to understand from that medium), the less cognitive effort he will invest in understanding messages from that medium. Our study asked respondents to evaluate how difficult the following kinds of stories are to understand on television and in newspapers: election news, sports, news, world news, and coverage of celebrities.

In addition to testing the incremental contribution to political knowledge of these various types of involvement measures, we will test the following hypotheses:

1. Krugman (1966) has suggested that issue-specific and medium-specific involvement may interact. Therefore, we hypothesize that there will be an interaction between affective issue- and medium-involvement (reliance) as they impact on election knowledge. For people who exhibit low involvement with politics (low affect — low ideological extremity), there should be no difference in learning between those who are newspaper or television dependent. For people who exhibit high involvement with politics, the newspeper-dependent people should know more about politics than television-dependent people.

2. Krugman (1977) has also suggested that left- and right-brain learning may be tapped differently by the use of recall (left-brain learning) and recognition (right-brain learning) operational definitions. If learning from television occurs primarily in the right brain and learning from newspapers occurs in the left brain, then we might find support for this

hypothesis: Television-reliant people will recall less about the election than do newspaper-reliant people, but there will be no difference between the two groups in their recognition of election facts and figures.

3. Some (e.g., Greenwald and Leavitt, 1984; Chaffee and Roser, 1986) have suggested that involvement varies directly with the amount of cognitive processing that occurs, such that higher levels of involvement are associated with higher levels of cognitive processing. Salomon (1983) says that the amount of mental effort a person expends on cognitive processing will depend on the amount of effort he anticipates will be required. He suggests that the more stereotyped a person's view of a mass medium is, the less cognitive effort he will expend in processing messages from that medium. Stereotyping is measured as how homogeneous a person's responses are when asked how difficult various types of content are to understand within one medium. We will test this hypothesis about differences in cognitive effort expended by television- and newspaper-reliant individuals: The amount of cognitive effort required to process television messages is viewed more stereotypically than is the amount required for newspaper messages.

4. Assuming that cognitive effort is related to learning, we will also test this hypothesis: The more stereotyped a person's view of a medium is (and the less cognitive effort is expended), the less he will learn from it. We will also look at differences between those who say that they are television- and newspaper-dependent.

Method

This study analyzes data gathered with a telephone survey of _____ area residents in October 1986. A 67-item questionnaire was administered by members of a graduate survey research class using a computer-assisted telephone interviewing (CATI) system.[1] The questionnaire covered media use and attitudes, perception and knowledge of candidates and issues, voting patterns, political beliefs, and demographics. Telephone numbers were randomly generated by computer from residential listings. The survey was conducted between October 19 and 25, 1986. A total of 238 interviews were completed.

See Appendix A for a complete list of operational definitions, including index construction and Cronbach's alpha as a test of scale reliability.

Results

To test the contribution of our two additional involvement measures to the McLeod and McDonald (1985) model, we performed separate regression analyses on newspaper- and television-reliant respondents' recall of and recognition of election information. The McLeod/McDonald variables (demographics as one block, communication variables as another) were entered first into the equation, with our additional measures of affective involvement and cognitive effort entered last. Table 1 shows the results for the "recall" index of election knowledge, and Table 2 shows identical analyses using the "recognition" index. The distinction between recall and recognition measures turns out to be important, with the model explaining more variance in recall of election information than it did for recognition of election information. We also see differences in which variables relate to election knowledge between

the newspaper- and television-reliant respondents.

Table 1 shows that the demographic variables (especially age) are more important in explaining television-reliant respondents' recall of election information than for newspaper-reliant individuals. The second block of independent variables assessed the contribution of the McLeod/McDonald communication variables to election knowledge. These include general exposure to newspapers and television, cognitive involvement with (attention to) election news in newspapers and on television, behavioral involvement with (specific reading of) election news in newspapers and on television, and gratifications sought (both surveillance and communication utility). These combined demographic and communication variables accounted for 32% of the variance in recall of election information (42% of the variance in recognition) by newspaper-reliant individuals and for 48% of the variance in recall (34% of the variance in recognition) by television-reliant individuals.

The addition of the affective involvement measure suggested by Chaffee and Roser (1986) and the measures of cognitive effort suggested by Salomon (1983) did account for a statistically significant increment to R^2 in recall of election information among both newspaper- and television-reliant individuals, but not in recognition of election information. A review of the standardized betas in Table 1 shows that the cognitive effort variables are responsible for the bulk of the contribution in variance.

Among newspaper-reliant individuals, the amount of cognitive effort expended in processing information from newspapers was positively related to recall of election information, whereas cognitive effort expended in processing televised information was negatively related to recall. Among television-reliant individuals, perceived cognitive effort

necessary to process television messages is positively related to recall of election information. This consistency — a positive relationship between newspaper cognitive effort and recall for newspaper-reliant individuals and a positive relationship between television cognitive effort and recall for television-reliant individuals — is support for Salomon's contention that cognitive effort may be measured as a social psychological variable, with the amount of effort expended being related to the stereotypical way that the media are viewed by the individual. The addition of these variables brought the total R^2 to .43 for newspaper-reliant individuals' recall (.43 for recognition) and .57 for television-reliant individuals' recall (.37 for recognition).

The difference between recall and recognition operationalizations of election knowledge reveal that the way in which knowledge is measured will have a big impact on the results. Figure 1 shows that, controlling for respondent's age, respondents are able to recognize the correct answer to an election question far more often than they are able to recall the correct answer to an open-ended question.[2] Cognitive effort did add a significant amount to variance in recall knowledge but not to recognition of political facts, suggesting that even when election information is not processed very deeply, individuals still are sometimes able to recognize the right answer when presented with a list of possible responses.

Our remaining analyses are designed to test the four hypotheses presented in addition to the above model. Because respondent's age was so strongly related to election knowlege in the preceding analyses, age is used as a control variable in the hypothesis tests. Hypothesis one stated that there should be an interaction between affective issue involvement and media reliance, but Table 3 shows no evidence of an interaction between affect and reliance. In fact, in all analyses performed, the affective involvement variable added virtually nothing to our ability

to explain variance in election knowledge.

Hypothesis two predicted that television-reliant individuals would recall less about the election than do newspaper-reliant individuals, but that there would be no difference between the two groups in their recognition of political facts and figures. Figures 2 (for recall of election information) and 3 (for recognition of election information) show that the hypothesis is supported for younger respondents, but not for older.[3] Newspaper-reliant younger individuals did recall more about the election than did their television-reliant peers, whereas there was no statistically significant difference in recognition of information between the newspaper- and television-reliant groups. Among older individuals, there was no difference in either recognition or recall between newspaper- and television-reliant people.

The findings for younger respondents do support Krugman's (1977) contention that left-brain (i.e., newspaper) learning may be best tapped by the use of recall measures, whereas right-brain (i.e., television) learning may be best tapped by the use of recognition measures. Television-reliant younger respondents were able to recognize the correct answer when presented with a list of possible responses, but their ability to recall the correct response when presented with an open-ended election knowledge question was less than their newspaper-reliant counterparts.

The fact that there was no difference in election knowledge between newspaper- and television-reliant older individuals may be the result of life experiences contributing to long-term memory. It is likely that experiences with the political arena can negate differences in short-term learning from left- and right-brain processing that would result from a reliance for election information on newspapers and television.

Hypothesis three predicted that the amount of cognitive effort necessary to process television messages would be viewed more stereotypically than would the amount required for newspaper messages. According to Salomon (1983), the amount of cognitive effort which an individual expends when viewing a medium is negatively related to how stereotypically he views that medium. Figure 4 shows that the hypothesis is supported for younger, but not for older respondents.[4] Among individuals 18-34 years of age, television-viewing is viewed more stereotypically than is newspaper-reading; among individuals 35 years of age or older, the media are viewed similarly. It is also interesting to note that younger respondents tend to view both media less stereotypically (and hence, according to Salomon, expend more cognitive effort when using the media) than do older respondents.

Hypothesis four tests the relationship between the amount of cognitive effort expended in using a medium and learning from that medium. Our earlier test of the overall model showed that cognitive effort added a statistically significant amount to R-square even when we controlled for a variety of demographic and communication variables. In Table 4 we see positive zero-order relationships between cognitive effort expended in reading the newspaper and both recall and recognition of election information, whereas the relationship between television cognitive effort and election knowledge is negative and approaches zero.

Table 5 shows the zero-order Pearson correlation coefficients between newspaper and television cognitive effort and the recall and recognition measures of election information, broken down by newspaper- and television-reliant individuals. The table also shows first-order partial coefficients, controlling for age. Table 5 shows that newspaper-reliant individuals who recall a lot of election information tend to expend little cognitive effort in

watching television. Controlling for age, television-reliant individuals who can recognize the correct election-information answer when presented with it tend to expend lots of cognitive effort when reading the newspaper.

This suggests the presence of a possible interaction between media reliance and cognitive effort expended in processing information from the media. Table 6 shows the results of a hierarchical regression analysis in which demographic variables enter the equation first, cognitive effort main effects second, media reliance third, and the cognitive effort/reliance interactions last. There is a statistically significant interaction between media reliance and cognitive effort as they affect recall of election information, with the newspaper effort/media reliance variable being positive related to knowledge and the television effort/media reliance variable being negatively related to knowledge. Figure 5 shows that newspaper-reliant individuals who expend a lot of cognitive effort in watching television actually recalled less election information than did newspaper-reliant individuals who expend little cognitive effort in watching television! Conversely, Figure 6 shows that a high expenditure of cognitive effort in reading the newspaper helped newspaper-reliant individuals recall more election information than those newspaper-reliant individuals who expend less cognitive effort.

We can conclude that the highest recall of election information would be associated with expending lots of cognitive effort in reading the newspaper and very little when watching television. There was no interaction between media reliance and cognitive effort for recognition of election information.

In summary, our test of a revised model including cognitive effort as an additional involvement measure did add to our ability to predict election knowledge. Hypothesis one was not

supported, showing virtually no relationship between affective involvement and election knowledge. Our other hypotheses were supported for younger respondents, but not for older respondents. There is a difference between recall of election information among young television-reliant and young newspaper-reliant individuals, whereas the two media-reliant young groups got similar recognition scores. We also showed that, among younger respondents, the amount of cognitive effort expended in reading the newspaper is higher that that expended in watching television. Finally, we showed an interaction between cognitive effort expended and recall of election information.

Discussion

The purpose of our study was to show how additional measures of "involvement" could add to our ability to explain variance in individuals' knowledge of election information and to look at differences in two operational definitions of knowledge.

Previous studies (e.g., Chaffee and Schleuder, 1987; Reese and Miller, 1981) have suggested that observed differences in information holding between television- and newspaper-reliant individuals could be explained by differences between the two groups such as political interest or education. We have shown evidence in favor of three other explanatory factors — the operational definition researchers use in measuring knowledge, the amount of cognitive effort expended in processing information from newspapers and television, and the respondent's age.

Krugman (1977) suggested that left-brain information processing (i.e., newspaper

reading) can be best tapped by recall (i.e., open-ended) knowledge questions, whereas right-brain information processing (i.e., television viewing) can be best tapped by recognition (i.e., closed-ended) knowledge questions. Our study found no difference between newspaper- and television reliant individuals' recognition of election information, whereas younger respondents' recall of election facts was greater if they were newspaper-reliant. This suggests that television-reliant individuals are in fact receiving and processing election information, but that the information can be retrieved best through a multiple-choice type of question.

The respondents' age also turns out to be important, as we see in the above example. Accumulated life experiences and long-term memories may assist in the recall of election information, helping fill in the blanks in left-brain processing which may be neglected among those who are currently television-reliant. We also see that older respondents report lower levels of cognitive effort expended in using both television and newspapers. Whereas younger respondents expended more cognitive effort in reading the newspaper than in watching television, there was no such difference among older respondents.

Thus our conclusions about whether a medium is "high" or "low" involvement may depend totally on whom we choose to study (e.g., according to their political interest, education, and age), how we measure knowledge, and how we choose to conceptualize involvement. Measuring involvement as general media use, behavioral involvement with (exposure to) election stories in the media, cognitive involvement (attention) with election stories in the media, gratifications sought, and cognitive effort expended with a medium all help explain variance in election knowledge, but the results can vary dramatically depending on whether knowledge is measured as the recall of information or as the recognition of the correct response. When recall is the

measure, newspaper-reliant people may appear to be more "involved" in the election, but when recognition measures are used, television-reliant people can do just as well. In addition, the presence of an interaction between media reliance and cognitive effort helps us predict variance in recall of election information but not recognition.

We also may need to differentiate between knowledge that accumulates over time and that which can only be the result of recent information processing. Much of the variance in election knowledge — especially among those who are television-reliant — is explained by age, not by any type of media involvement, suggesting that life experiences and long-term memory are negating left- and right-brain processing effects of recent media reliance.

The area of cognitive effort also needs further exploration. Although our results do support Salomon's contention that cognitive effort can be measured as the homogeneity of responses to how difficult various types of content are to understand in a medium, there are some intuitive difficulties with this approach. For example, what if one views all newspaper stories (from world news to celebrity stories) as difficult to understand? Salomon's approach would code this as homogeneous and hence indicative of low cognitive effort, but the face validity of such a conclusion is questionable unless we assume that the individual would simply give up in the face of a medium so daunting that stories about rock stars are as hard to comprehend as those about politics.

We also need to consider the relative worth of information processed through the left or right brain. If television-reliant individuals learn as much as newspaper-reliant individuals, but can only report that information learned through recognition measures (e.g, multiple-choice questions), what ramifications does that have for those individuals' political

participation. Perhaps we should be thankful that election ballots present multiple-choice alternatives between candidates rather than requiring the voter to write-in his chosen candidate's name. But given the typical multiple-choice ballot, perhaps the television-reliant individual's vote is as informed as is that of his newspaper-reliant peer. The issue should not be whether the necessary information is retrievable through recall-type questions, but whether it is retrievable in a way that will be useful in making political decisions.

Table 1. Hierarchical regression analyses of demographic and communication variables on recall of election information among newspaper-reliant (N=69) and television-reliant (N-61) individuals.

Recall of election information	Newspaper-reliants		Television-reliants		Total sample *	
	R^2 change	Std. beta	R^2 change	Std. beta	R^2 change	Std. beta
Demographic variables						
Income		.06		.14		.15a
Age		.05		.46c		.29c
Education		.16		.17		.16a
	.13a		.31c		.21c	
Communication variables						
Exposure — general						
Newspaper		.09		-.18		-.07
Television		-.02		-.14		-.05
Cognitive involvement						
Newspaper		.16		.17		.10
Television		-.06		.15		.04
Behavioral involvement						
Newspaper		.12		.43b		.22a
Television		.22		-.30a		.09
Gratifications sought		.04		-.18		-.11
	.19a		.17a		.10b	
Affective involvement		.11		-.14		-.07
Cognitive effort						
Newspaper		.31b		-.04		.19a
Television		-.32b		.28a		-.10
	.10b		.08a		.03	
TOTAL R-SQUARE	.43c		.57c		.35c	
ADJUSTED R-SQUARE	.30C		.45C		.28C	

* Also includes 17 respondents who reported that they relied on an information source other than newspapers or television.

a p<.05 b p<.01 d p<.001

Table 2. Hierarchical regression analyses of demographic and communication variables on recognition of election information among newspaper-reliant (N=69) and television-reliant (N-61) individuals.

Recognition of election information	Newspaper-reliants		Television-reliants		Total sample *	
	R^2 change	Std. beta	R^2 change	Std. beta	R^2 change	Std. beta
Demographic variables						
Income		.21		.04		.14
Age		.16		.28a		.30c
Education		.00		.16		.19a
	.21c		.17b		.23c	
Communication variables						
Exposure — general						
Newspaper		.26a		.14		.13
Television		.07		.05		.06
Cognitive involvement						
Newspaper		.11		.14		.13
Television		-.22		-.05		-.08
Behavioral involvement						
Newspaper		.03		.27		.03
Television		.35b		-.25		.07
Gratifications sought		.22		-.18		-.09
	.21b		.17		.06	
Affective involvement		-.05		.06		.05
Cognitive effort						
Newspaper		.02		.22		.14
Television		-.06		-.16		-.11
	.00		.03		.02	
TOTAL R-SQUARE	.43c		.37c		.30c	
ADJUSTED R-SQUARE	.29c		.20c		.24c	

* Also includes 17 respondents who reported that they relied on an information source other than newspapers or television.

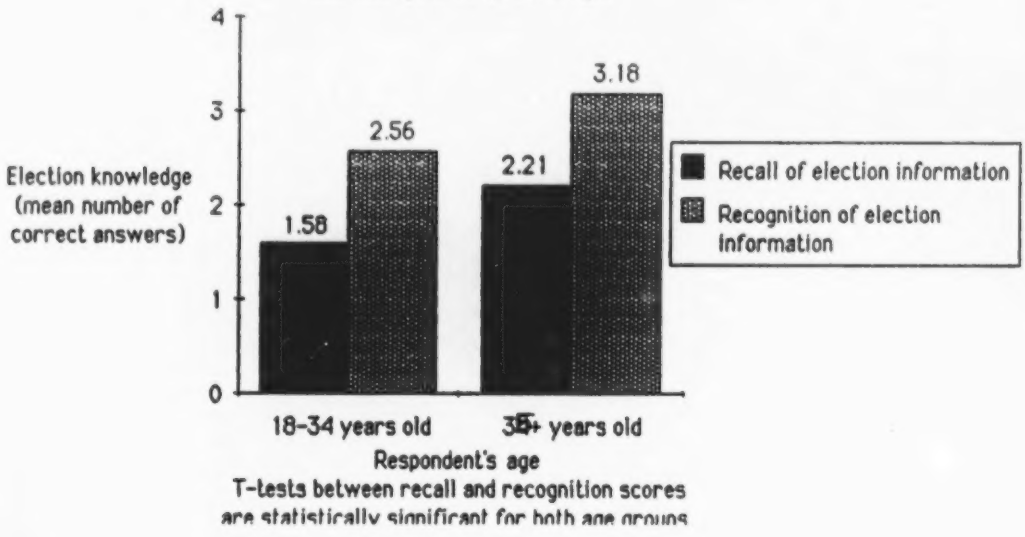
a p<.05 b p<.01 d p<.001

Table 3. Hierarchical regression analyses of demographic variables, affective involvement, media reliance, and affect/reliance interaction on recall and recognition of election information, N=199.

Dependent measures of election knowledge	Independent variables	Std. beta	R^2 change	Total R^2 change
Recall	Age	.28c		
	Education	.27c		
	Income	.23c		
			.22c	.22c
	Affective involvement	.04	.00	.22c
	Media reliance (dummy coded)	.09	.01	.23c
	Affect X reliance interaction	.31	.01	.24c
Recognition	Age	.30c		
	Education	.32c		
	Income	.17b		
			.23c	.23c
	Affective involvement	.12	.01	.24c
	Media reliance (dummy coded)	.09	.01	.25c
	Affect X reliance interaction	-.06	.00	.25c

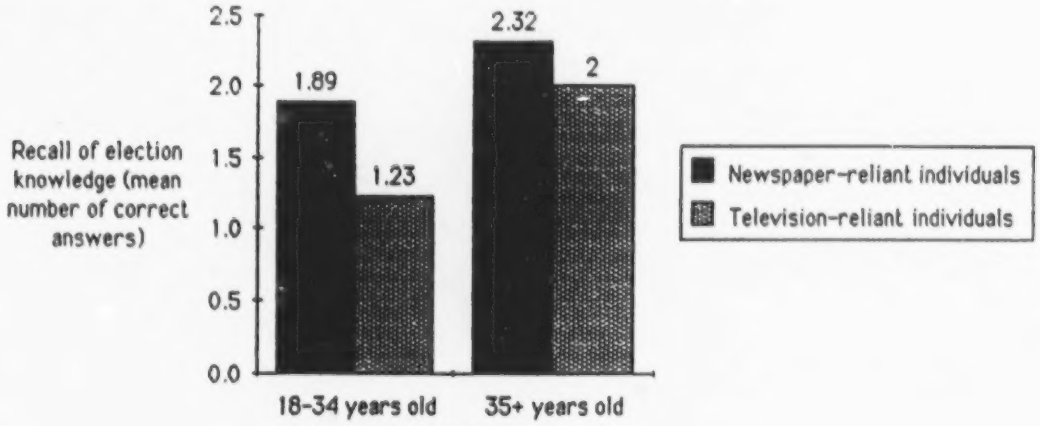
a p<.05 b p<.01 c p<.001

Figure 1
Comparison of operational definitions for election knowledge, controlling for respondent age.



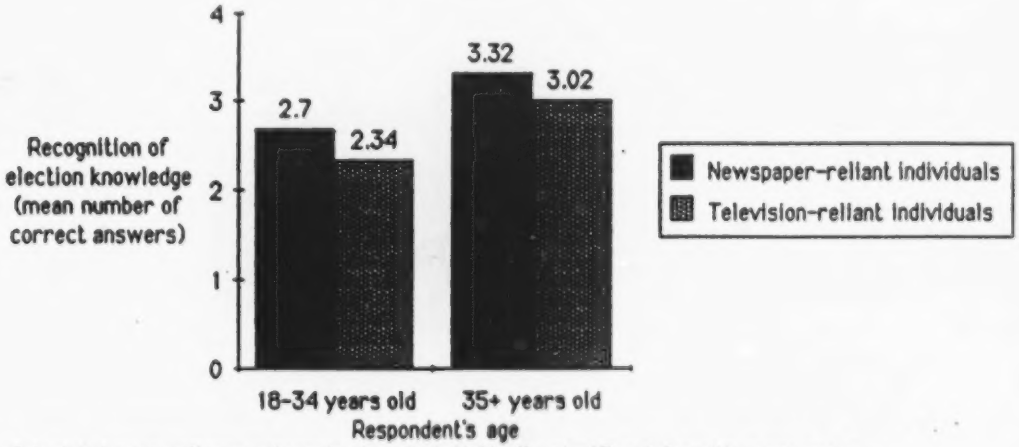
T-tests between recall and recognition scores are statistically significant for both age groups

Figure 2
Recall of election information by media reliance, controlling for age



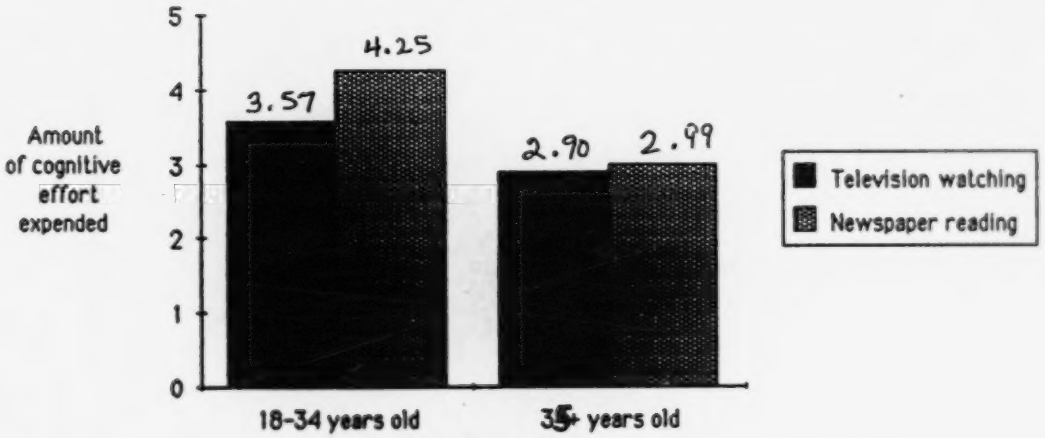
T-test between reliance categories is statistically significant for 18- to 34-year-olds, but not for older respondents.

Figure 3
Recognition of election information by media reliance, controlling for age.



T-test between reliance categories is not statistically significant for either age group.

Figure 4
Comparing cognitive effort expended in reading the newspaper and in watching television, controlling for respondent's age.



T-tests between newspaper and television were statistically significant for 18- to 34-year-olds, but not for older respondents

Table 4. Zero-order Pearson and partial (controlling for demographics) correlation coefficients of recall and recognition measures of election knowledge with measures of cognitive effort expended while watching television and reading the newspaper, N=157.

Zero-order variables	Control variables	Knowledge measures	
		Recall	Recognition
Cognitive effort while watching television		-.06	-.03
	Income	-.13a	-.10
	Education	-.11	-.08
	Age	-.08	-.08
	Age, education	-.06	-.04
	Income, education	-.12	-.09
	Age, educ., income	-.07	-.04
Cognitive effort while reading the newspaper		.13a	.15a
	Income	.00	.01
	Education	.02	.03
	Age	.09	.11
	Age, education	.11	.12
	Income, education	.00	.00
	Age, educ., income	.08	.10

a $p<.05$ b $p<.01$ c $p<.001$

Table 5. Pearson and first-order partial (controlling for age) correlation coefficients of recall and recognition measures of election knowledge with cognitive effort expended when watching television or reading the newspaper, broken down into newspaper- and television-reliant groups.

Election knowledge measures	Newspaper-reliants		Television-reliants	
	Newspaper cognitive effort	Television cognitive effort	Newspaper cognitive effort	Television cognitive effort
Zero-order correlation coefficients				
Recall	.12 (84)	-.26b (87)	-.02 (75)	.09 (88)
Recognition	-.03 (84)	-.11 (87)	.11 (75)	-.06 (88)
First-order partial correlation coefficients (controlling for age)				
Recall	.14 (79)	-.25b (79)	.19 (67)	.18 (67)
Recognition	.02 (79)	-.05 (79)	.29b (67)	-.02 (67)

a p<.05 b p<.01 c p<.001

Table 6. Hierarchical regression analyses of demographic variables, cognitive effort expended while using the media, media reliance, and effort/reliance interactions on both recall and recognition of election knowledge, N=140.

Dependent measures of election knowledge	Independent variables	Std. beta	R^2 change	Total R^2
Recall	Age	.28c		
	Education	.23b		
	Income	.22		
			.21c	.21c
	Cognitive effort — newspapers	.20a		
	Cognitive effort — television	-.11		
			.03	.24c
	Media reliance — dummy coded	.03	.00	.24c
	Newspaper effort X reliance	.32		
	Television effort X reliance	-.41a		
			.04a	.27c
Recognition	Age	.34c		
	Education	.26c		
	Income	.17a		
			.24c	.24c
	Cognitive effort — newspapers	.17a		
	Cognitive effort — television	-.07		
			.02	.26c
	Media reliance — dummy coded	.05	.00	.26c
	Newspaper effort X reliance	-.32a		
	Television effort X reliance	.24		
			.02	.28c

a p<.05 b p<.01 c p<.001

Figure 5
Recall of election information by cognitive effort expended in watching television, for newspaper- and television-reliant individuals, N=203.

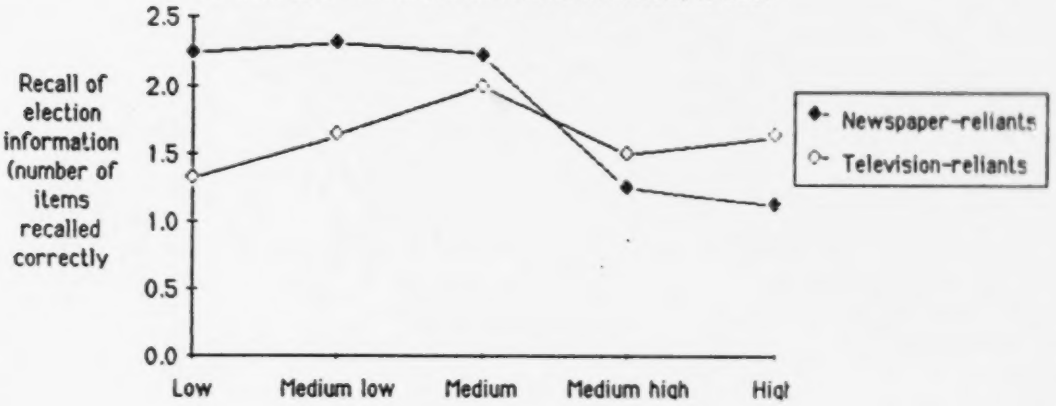
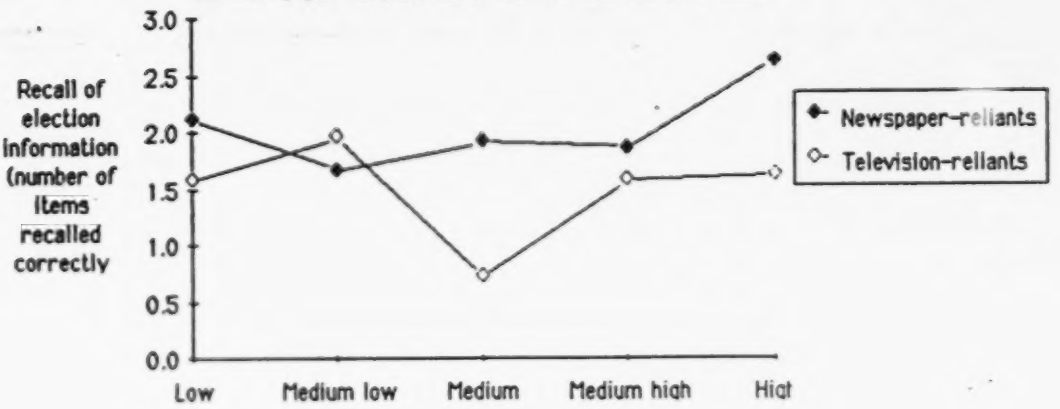


Figure 6
Recall of election information by cognitive effort expended in reading the newspaper, for newspaper- and television-reliant individuals, N=203.



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NOTES

[1] Questionnaire Administrator, Version 3.3, Computer-Assisted Survey Execution System (CASES), Computer-Assisted Survey Methods Program, University of California, Berkeley, 1985.

[2] T-tests between election knowledge recall and recognition means were statistically significant at the $p<.001$ level for both age groups. For the 18-34 age group, $t=-9.08$; for the 35+ age group, $t=-9.83$. Means are shown in Figure 1.

[3] For younger respondents, the t-test of mean election knowledge recall between newspaper- and television-reliant individuals was statistically significant at the $p<.05$ level, $t=2.48$. The equivalent test for recognition of election information was not statistically significant, $t=1.5$. Means are presented in Figure 2. For older respondents, neither t-test was statistically significant. In comparisons of mean recall of election information, $t=1.32$; for recognition of election information, $t=1.51$. Means are presented in Figure 3.

[4] The t-test between mean cognitive effort expended in viewing television and in reading the newspaper was statistically significant ($t=-2.18$, $p<.05$) for the younger respondents, but not for the older respondents ($t=-.30$, ns).

Appendix A

Question wording, Cronbach's Alpha and item intercorrelations for dependent and independent variables:

Dependent variables

Recall of political facts and figures index

- Who is the Democratic candidate for Governor in Texas?
- Who is the Republican candidate for the U.S. Congress from the Austin area?
- Jim Hightower is currently seeking re-election to a state-wide office in Texas. Can you identify the position he presently holds?
- Who is the current Attorney General who is running for re-election?

Cronbach's alpha = .63 Average item intercorrelation = .30

Recognition of political facts and figures index

- During the recent special session of the Texas legislature, the Speaker of the House played a major role. Was that person Gib Lewis, Bill Clements or Bill Hobby?
- Can you name the Democratic candidate for Lieutenant Governor? Is he Bill Hobby, David Davidson, or Phil Gramm?
- The recent special session of the Texas Legislature concentrated on problems concerning the legal drinking age, teacher competency testing, or the state's budget deficit?
- Major changes in public education, including a required competency test for teachers, were put into effect during which candidate's term as governor? Was it Bill Clements, Mark White, or Frank Cooksey?

Cronbach's alpha = .59 Average item intercorrelation = .26

Independent variables

General newspaper exposure

- About how many days a week do you read a newspaper? Coded as 0 to 7 days.

General television exposure

- What would you say is the average number of hours you watch television after 5 p.m. on a week night? Coded as 0 to 12 hours.

Media reliance

- From which of the following sources do you get most of your information about the November 4th election? From radio, newspapers, family and friends, television, or magazines?

Behavioral involvement with election news

- About how often do you read stories in your newspaper about the November 4th election? Never, very seldom, seldom, often, very often.
- About how often do you watch television news stories and programs about the November 4th election? Never, very seldom, seldom, often, very often.

Cognitive involvement with election news

- When you are reading the newspaper and come across stories about the November 4th election, how much attention do you pay to them? No attention, a little attention, some attention, a lot of attention.
- When you are watching television news programs, and stories about the November 4th election appear, how much attention do you pay to them? No attention, a little attention, some attention, a lot of attention.

Affective involvement with election news

- Some people describe their political views in terms of liberal or conservative positions. Would you describe yourself as very liberal, liberal, middle of the road, conservative, or very conservative? Scale was "folded" so that it measures distance from the center: middle of the road, liberal or conservative, very liberal or very conservative.

Gratifications sought

Here is a list of reasons different people have given us when asked why they read newspaper stories or watch television about the upcoming election. For each reason tell us whether you strongly agree, agree, are neutral, disagree, or strongly disagree. (Items were not separated into surveillance and utility indexes because Cronbach's alpha was lower for each of the separate indexes: surveillance, alpha=.50; utility, alpha=.48.)

- The news helps me see how elected officials stand on the issues.
- The news helps me judge the personal qualities of elected officials.
- The news helps me know what elected officials are doing.
- The news gives me something to talk about with others.
- The news lets me share the excitement of politics.
- The news gives me information that agrees with my political position.

Cronbach's alpha = .59 Average item intercorrelation = .19

cognitive effort expended — television

Now we want to find out how eary or hard it is to learn about the elections and other topics from newspapers and television news stories. For each type of news story I name, please tell me whether it is very hard, fairly hard, fairly easy, or very easy to understand. (Each was coded as very easy to understand, fairly easy, fairly hard, very hard.)

- Election stories on television.
- Sports news on television.

- World news on television.
- News about celebrities on television

An index of homogeneity was constructed by summing the absolute values of the difference between each item and every other item. If the respondent scored all items the same, the score would be 0; the maximum value was 12. The formula was:

homogeneity=abs(A-B) + abs(A-C) + abs(A-D) + abs(B-C) + abs(B-D) + abs(C-D)

Cronbach's alpha = .73 Average item intercorrelation = .31

cognitive effort expended — newspapers

Same introduction and scale.

- Election news in the newspaper.
- Sports news in the newspaper.
- World news in the newspaper.
- News about celebrities in the newspaper.

An index of homogeneity was constructed as described in the "cognitive effort — television" index.

Cronbach's alpha = .75 Average item intercorrelation = .33

Demographics

- We need your approximate age. Is your age in the category 18-24 years, 25-34, 35-44, 45-54, 55-64, 65 or older?
- What was the last grade in school that you completed? Less than 8 grades, 8-11 grades, 12 grades or high school, some college or trade school, college graduate, advanced degree.
- Approximately what is your total family income? Is it in the category under $10,000, $10,000-19,000, $20,000-29,000, $30,000-49,000, $50,000-59,000, $60,000 or more.